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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,437	09/28/2001	Masafumi Fukuda	110738	2044

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EXAMINER

WU, XIAO MIN

ART UNIT	PAPER NUMBER
2674	14

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,437

Applicant(s)

FUKUDA, MASAFUMI

Examiner

XIAO M. WU

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,6,7,9-19 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3,6,7 and 9-17 is/are allowed.
- 6) ☒ Claim(s) 18,19 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 18, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misawa (US Patent No. 5,250,931) in view of Kudo (US Patent No. 6,118,425).

As to claims 18, 22, Misawa discloses a display panel which is formed on a glass substrate (11, Fig. 1), and a plurality of display driver (12, 21) which are mounted on the glass substrate and drive the display panel, wherein each of the display drivers generate driving voltage for driving the display panel based on a power source voltage supplied through an interconnecting line (36) formed on the glass substrate (11), wherein the voltage supplied through the interconnecting line is gray scale driving voltage (e.g. V₁, V₂, V₃, see col. 5, lines 8-10). Misawa also discloses that the interconnecting line which is supplied to another semiconductor device (e.g. 17, 18, 19) mounted on the glass substrate (11) as required in claim 22. It is noted that Misawa does not specifically disclose the display drivers include a voltage-follower-type operational amplifier circuit. However, using a voltage-follower-type operational amplifier circuit in a LCD display driver is well known in the art such as taught by Kudo (e.g. Fig. 31 of Kudo shows a voltage follower using operational amplifiers 811). Kudo further discloses that the impedance conversion is performed at each of the display drivers (see col. 18, lines 11-16 and Fig. 31). It would have been obvious to one of ordinary skill in the art to have

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modified Misawa with the features of the voltage-follower-type operational amplifier circuit as taught by Kudo because Kudo's driver circuit provides a method of selectively driving a plurality of lines, in which shadowing in the vertical direction due to the difference in waveform distortion of a data voltage can be reduced (col. 2, lines 55-58).

As to claim 19, Misawa discloses the display panel is an active matrix panel.

Allowable Subject Matter

3. Claims 2-3, 6-7 and 9-17 are allowed.

Response to Arguments

4. Applicant's arguments filed 4/14/2004 have been fully considered but they are not persuasive.

Applicant argues that Misawa or Shimizu do not teach impedance conversion is performed at each of the display drivers. This argument is not persuasive because the newly applied reference to Kudo clearly teaches such limitations. See the above rejection with regarding to Kudo.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US Patents 5,745,092 is cited to teach a LCD driver including impedance conversion in a voltage-follower circuit.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington.

VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377

xw

June 24, 2004



**XIAO WU
PRIMARY EXAMINER
ART UNIT 2674**